

CLAIMS

I claim:

1. A system for modeling a sound field comprising:

5 a sound source capable of producing a sound event that generates a radiating sound field;

10 a plurality of transducers arranged on a predetermined geometric surface at least partially surrounding said sound source to capture on the geometric surface the sound field generated by the sound event, where the sound field comprises predetermined parameters;

15 means for modeling the sound field based on at least selected ones of the predetermined parameters; and

means for storing the modeled sound field.

20 2. The system of claim 1 wherein the predetermined geometric surface is a spherical surface and the plurality of transducers are located on the spherical surface.

25 3. The system of claim 1 wherein the predetermined parameters comprise amplitude and directivity, and the sound field is modeled based on at least the amplitude and directivity of the sound field at the predetermined geometric surface.

4. The system of claim 1 wherein the sound source is a musical instrument.

30 5. A system for modeling a sound field and creating a sound event based on the modeled sound field, said system comprising:

a sound source capable of producing a sound event that generates a radiating sound field;

a plurality of transducers arranged on a predetermined geometric surface at least partially surrounding said sound source to capture on the geometric surface the sound field generated by the sound event, where the sound field comprises predetermined parameters;

means for modeling the sound field based on at least selected ones of the predetermined parameters;

means for storing the modeled sound field; and

means for selectively creating a sound event based on the modeled sound field.

6. The system of claim 5 wherein the predetermined geometric surface is a spherical surface and the plurality of transducers are located on the spherical surface.

7. The system of claim 5 wherein the predetermined parameters comprise amplitude and directivity, and the sound field is modeled based on at least the amplitude and directivity of the sound field at the predetermined geometric surface.

8. The system of claim 5 wherein the sound source is a musical instrument.

9. The system of claim 5 wherein the created sound event is a substantially identical replica of the sound event that generated the modeled sound field.

10. The system of claim 5 wherein the created sound event is based on the sound event that generated the modeled sound field, but is a purposefully modified version thereof.

11. The system of claim 5 wherein the created sound event is an explosion sound event.

12. The system of claim 5 further comprising:
means for modeling the created sound event; and
means for comparing the original sound event model and the created sound
event model.

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13. A method for modeling a sound field generated by a sound source, said
method comprising the steps of:

producing a sound event that generates a radiating sound field;

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prodding a plurality of transducers arranged on a predetermined geometric
surface at least partially surrounding said sound source to capture on the geometric surface
the sound field generated by the sound event, where the sound field comprises predetermined
parameters;

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modeling the sound field based on at least selected ones of the predetermined
parameters; and

storing the modeled sound field.

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14. The method of claim 13 wherein the predetermined geometric surface is a
spherical surface and the plurality of transducers are located on the spherical surface.

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15. The method of claim 13 wherein the predetermined parameters comprise
amplitude and directivity, and wherein the step of modeling the sound field is based on at
least the amplitude and directivity of the sound field at the predetermined geometric surface.

16. The method of claim 13 wherein the sound source is a musical instrument.

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17. A method for modeling a sound field generated by a sound source and creating
a sound event based on the modeled sound field, said method comprising the steps of:

producing a sound event that generates a radiating sound field;

providing a plurality of transducers arranged on a predetermined geometric surface at least partially surrounding said sound source to capture on the geometric surface the sound field generated by the sound event, where the sound field comprises predetermined parameters;

modeling the sound field based on at least selected ones of the predetermined parameters;

storing the modeled sound field; and

selectively creating a sound event based on the modeled sound field.

18. The method of claim 17 wherein the predetermined geometric surface is a spherical surface and the plurality of transducers are located on the spherical surface.

19. The method of claim 17 wherein the predetermined parameters comprise amplitude and directivity, and wherein the step of modeling the sound field is based on at least the amplitude and directivity of the sound field at the predetermined geometric surface.

20. The method of claim 17 wherein the sound source is a musical instrument.

21. The method of claim 17 wherein the created sound event is a substantially identical replica of the sound event that generated the modeled sound field.

22. The method of claim 17 wherein the created sound event is based on the sound event that generated the modeled sound field, but is a purposefully modified version thereof.

23. The method of claim 17 wherein the created sound event is an explosion sound event.

24. The method of claim 17 further comprising the steps of:
modeling the created sound event; and
comparing the original sound event model and the created sound event model.